



*The Reality of Using Infographic Technology in University Education
A Field Study on a Sample of Algerian University Professors*

Salma Hamidane

University Mohamed El Bachir
El Ibrahimi of Bordj Bou Arreridj
(Algeria)

selma.hamidane@univ-bba.dz

Abstract

This study aims to explore the reality of using infographics as an innovative educational tool among Algerian university professors and their awareness of its importance in keeping up with technological advancements. The study employs a descriptive analytical approach that aligns with its objectives. A randomly selected sample of 50 Algerian university professors, both male and female, from various scientific fields was chosen. The study yielded several key findings, including:
The study indicated no statistically significant differences between genders or scientific fields in the use of infographic technology in university education.

- The results showed no statistically significant differences between genders regarding the benefits of using infographics in university education, whereas differences were found between scientific fields.
- The findings revealed no statistically significant differences between genders in the types of infographic design software used by professors in university education, while differences were observed between scientific fields.
- The results showed no statistically significant differences between genders or scientific fields in the desire to receive training courses on the use of infographic technology in university education.

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Keyword:

- ✓ Infographic technology
- ✓ University Education
- ✓ University professor.

1. Introduction:

At the dawn of the 21st century, the world is experiencing a revolution in information and communication technologies. This new reality has revealed the emergence of a global civilization centered around images, driven by information, and aimed at replacing human effort with modern technologies—technologies that, despite their small size, possess vast knowledge and remarkable intelligence.

The rapid advancements in technology have created new knowledge needs, necessitating the integration of tools and techniques that help meet these increasing intellectual demands. Among these technologies is infographic design, which has become an innovative educational tool and an essential necessity in our universities, keeping pace with the fast-changing world.

Given these transformations in higher education institutions, this study seeks to explore the reality of using infographic technology as an innovative educational tool in Algerian universities from the perspective of university professors. It aims to assess whether these new teaching methods meet the professors' needs and the evolving academic environment. To address this issue, the study seeks to answer the following main research question:

What is the reality of using infographic technology in teaching among Algerian university professors?

1. Methodological Procedures of the Study:

1.1. Sub-questions:

- Do the Algerian university professors in the study sample use infographic technology in teaching?
- What are the benefits of using infographic technology in university education?
- Are there statistically significant differences based on gender and academic fields among the study sample in the use of

infographic technology in university education?

-Are there statistically significant differences based on gender and academic fields among the study sample regarding the types of infographic design software they use in university education?

- Are there statistically significant differences based on gender and academic fields among the professors in their willingness to receive training on using infographic technology in university education?

1.2. Study Objectives:

This study aims to explore the reality of using infographic technology among Algerian university professors and assess their awareness of its importance in keeping up with technological advancements. The ultimate goal is to contribute to the advancement of Algerian universities to higher global rankings.

1.3. Key Concepts of the Study:

1.3.1. Infographic Technology: In this study, infographic technology refers to the method of visually presenting information and data (such as lectures, practical work, and directed studies) using design elements such as icons, illustrations, charts, and colors. The objective is to simplify information, making it clearer, more accessible, and visually appealing for university students.

1.3.2. University Education: This term refers to both theoretical and practical higher education provided to students, aiming to prepare them for professional life across various scientific and academic disciplines.

1.3.3. Algerian University Professor: This term refers to faculty members in Algerian universities across all academic ranks and disciplines.

1.4. Previous Studies :

1.4.1. Study by Ismail (2016): Conducted on Educational Technology students in Egypt, this study aimed to examine

the impact of infographics on academic achievement across different cognitive levels (recall, understanding, application, and analysis).

The researcher used an experimental method with a sample of 50 students, divided equally into:

Experimental group: Studied using infographics.

Control group: Studied using traditional methods.

Key findings: There were significant differences in the post-test scores between the two groups in favor of the experimental group, particularly in recall, understanding, application, and overall achievement.

1.4.2. Study by Zayed (2017): This study investigated the role of infographics as an effective learning tool in Jordanian universities.

A quasi-experimental approach was used with a sample of 300 students from graphic design programs at two private universities (Middle East University and Petra University).

Key findings: The effectiveness of infographics as a learning tool, from the students' perspective, was found to be moderate.

1.4.3. Study by Nada (2022): Aimed to assess the effectiveness of infographics in university teaching for the Graphic History course.

The researcher employed a quasi-experimental design with a sample of 67 students enrolled in the Graphic Design Diploma program at Palestine Technical University – Kadoorie.

Key findings: There were significant differences in academic achievement between the experimental and control groups, favoring the infographic-based teaching method.

A statistically significant difference was also observed between the pre-test and post-test scores of the experimental group, favoring the post-test results.

1.5. Research Methodology: This study adopts the descriptive method, which is suitable for collecting, interpreting, and analyzing data related to the research topic.

1.6. Population and Sample of the Study: The study population was limited to Algerian university professors. Due to their large number and the difficulty of encompassing them all, the research was restricted to a selected group. A random sample of 50 individuals from both genders was chosen.

1.7. Delimitations of the Study: This study is limited to the following delimitations:

-A random sample of Algerian university professors surveyed in October 2024.

-The data collection tool used is an electronic questionnaire.

1.8. Statistical Treatment: Frequencies and percentages, as well as the Chi-square (χ^2) test, were used in this study for statistical analysis.

2. Theoretical Framework of the Study:

2.1. Definition of Infographics:

Infographic is defined as the art of transforming data, information, and complex concepts into images and illustrations that can be clearly and engagingly understood. This method is characterized by presenting complex and difficult information in an easy and clear way (Shaltout, 2016, p. 111).

It is also defined as a visual representation of data and complex ideas aimed at communicating and facilitating their understanding, where the image plays a significant role in clarifying and simplifying information (Al-Sherbini, 2020, p. 673).

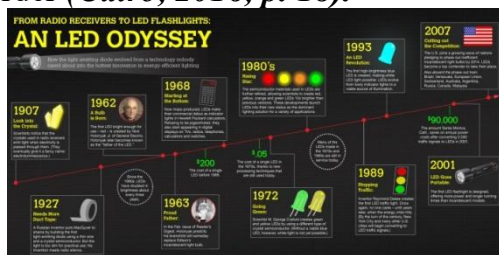
Moreover, infographic is described as a design that combines data visualization and illustrations, i.e., both text and images, to tell a complete story or idea that helps explain complex and sophisticated information that may be difficult to

comprehend through traditional texts (Krum, 2013, p. 107).

Another definition sees infographic as the art of delivering information in a simple and accessible way, easily and accurately perceived by the eye through a design characterized by harmony and creativity. It transforms data and information into visual forms and graphics, such as diagrams or mind maps, making them easier to perceive and understand (Amin, 2019, p. 14).

2.2. Types of Infographics: Infographics can be classified into several types, including:

2.2.1. Timeline Infographic: This type presents information along a chronological timeline, making it easier to trace the development of events or processes in their temporal order (Cairo, 2016, p. 18).



An example of a timeline infographic.
(Dawood, 2015)

2.2.2. Statistical Infographic: This type is used to present numerical data and statistics in a visual format. It relies on charts, statistical tables, and illustrative graphics to convey information clearly and effectively. (Few, 2009)



An example of statistical infographic
(www.onqmarketing.com)

2.2.3. Informational infographic: This type aims to present information and facts in a simple and visually accessible manner. It is commonly

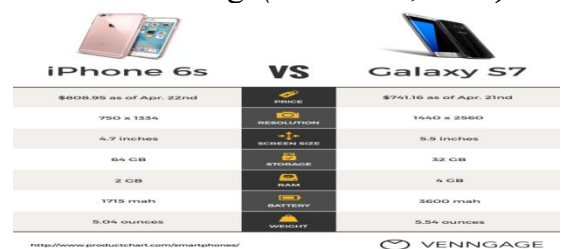
used to explain concepts and provide guidance without emphasizing statistical data. (Smiciklas, 2012)



An example of an informational infographic.

(<https://ar.venngage.com>)

2.2.4. Comparative Infographic: This type is used to compare two or more topics by visually presenting their similarities and differences in a clear and structured way. It aims to facilitate the understanding of variations among different elements and to support decision-making. (Smiciklas, 2012).



An example of a comparative infographic.

(<https://ar.venngage.com>)

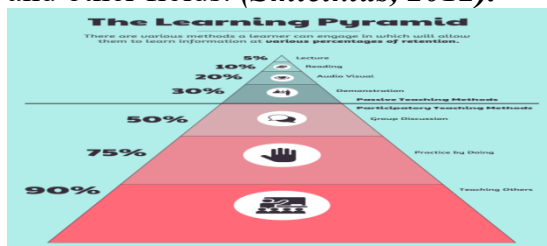
2.2.5. Geographic Infographic: This type is used to visually present geographic data and information, relying on maps and graphical illustrations. Its main objective is to facilitate the understanding of information related to locations, population distributions, climate trends, and regional analyses through the use of interactive maps. (Cairo 2016, p. 30).



Example of a geographic infographic

(<https://ar.venngage.com>)

2.2.6. Hierarchical infographic: This type is used to represent data and information in a hierarchical structure, where information is arranged from top to bottom based on its importance or sequential order. It is commonly used to display organizational levels, hierarchical progressions in education, marketing, management, and other fields. (Smiciklas, 2012).



An example of a hierarchical infographic

(<https://ar.venngage.com>)

2.2.7. Infographic of Stages: This type is used to visually represent sequential processes and steps in an organized manner. It relies on arrows and flowcharts to illustrate how a certain process is carried out or how something evolves through different stages. (Smiciklas, 2012).



Example of a Process Infographic.

(<https://ar.venngage.com>)

2.2.8. List Infographic: This type is used to present information in a structured or unstructured list format, making it easier to understand. It is commonly used in educational articles, marketing, and presentations. (Few, 2009)



Example of a List Infographic.

(<https://ar.venngage.com>)

2.2.9. Resume Infographic: A modern type of résumé that uses visual elements such as icons, charts, and diagrams to present personal and professional information. (Smiciklas, 2012).



Example of a Resume Infographic

(<https://ar.venngage.com>)

* Some researchers classify infographics into only three types, as follows: (Hassan, 2016, p. 03)

-Static Infographic: A visual graphic that explains a particular concept in a fixed format without requiring any interaction from the viewer. It includes: visual materials, charts, flyers, representations of large numbers, timelines, comparison graphics, and real images used to visualize data.

-Animated Infographic: A dynamic visual graphic that allows interaction with the viewer. This type incorporates elements of animation and is often found on websites that are increasingly adopting this format using various web technologies such as HTML5 and CSS3 to explain a specific concept. Some animated infographics appear in the form of videos that use visual infographic elements to represent information.

-Interactive Infographic: A type in which the user controls the information they wish to view and read by clicking or tapping on buttons designed in an engaging and interactive manner.

2.3. Infographic Design Software: Infographic design software varies depending on the type—static or animated—as follows: (Mahmoud, 2023, pp. 62–95)

2.3.1. Adobe Photoshop: Although primarily an image editing software, it can be used to design infographics in a visually engaging way.

2.3.2. Adobe Illustrator: A professional tool used to create high-quality infographics with precise control over design elements.

2.3.3. Inkscape: A free, open-source software that allows the creation of high-quality designs without losing resolution when scaling.

2.3.4. Tableau: A free software available only for Windows, used to visualize data in an infographic format.

2.3.5. PowerPoint: A program included in the Microsoft Office suite, commonly used for infographic creation, especially for presentations.

Additionally, some websites offer tools for creating high-quality infographic designs, such as:

2.3.6. Easel.ly: A free platform that enables quick and simple infographic design with flexible and easy-to-use templates.

2.3.7. Venngage: A tool used for creating educational and marketing infographics with multiple customization options, pre-designed templates, and interactive design tools.

2.3.8. Piktochart: A specialized platform for creating infographics, presentations, and visual reports, offering flexible editing tools, a graphics library, and easy file export.

2.3.9. Canva: A design tool that features a drag-and-drop interface for images and backgrounds, along with a vast library of photos and illustrations for use in infographics.

3. Field Study :

3.1. Presentation and Analysis of Study Data:

Table (01): Distribution of the Study Sample by Gender Variable:

Gender	Frequency	Percentage
Female	28	56.00
Male	22	44.00
Total	50	100

The above table (01) shows the distribution of the study sample according to the gender variable. It is evident that the percentage of females exceeded that of males, reaching 56%, while the percentage of males was 44%.

Table (02): Distribution of the Study Sample by Age:

Age Group	Frequency	Percentage
25 - 32 years	15	30.00
33 - 40 years	28	56.00
41 - 45 years	04	08.00
45 years and above	03	06.00
Total	50	100

Table (02) illustrates the distribution of the study sample based on the age variable. The largest proportion of the sample belongs to the 33 to 40-year age group, representing 56%. The percentage of individuals aged between 25 and 32 years is 30%, while those aged 45 years and above constitute 6%. The lowest percentage, 8%, is found in the 41 to 45-year age group.

Table (03): Distribution of the Study Sample by Scientific Field:

Scientific Field	Frequency	Percentage
Humanities and Social Sciences	08	16.00
Natural Sciences and Earth Sciences	27	54.00
Science and Technology	04	08.00
Economics and Management Sciences	11	22.00
Total	50	100

Table (03) presents the distribution of the study sample by scientific field. The results indicate that the field of Natural

Sciences and Earth Sciences ranks first with 54%, followed by Economics and Management Sciences with 22%. Participants from Humanities and Social Sciences account for 16%, while Science and Technology ranks last with 8%.

Table (04): University Professors' Use of Infographics in Higher Education:

Field of Study	Human and Social Sciences		Natural and Earth Sciences		Science and Technology		Economic and Management Sciences		Total	
Do you use infographics in higher education?	f	%	f	%	f	%	f	%	f	%
Yes	08	16.00	27	54.00	11	22.00	03	06.00	49	56.00
No	—	—	—	—	—	—	01	02.00	01	44.00
Total	08	16.00	27	54.00	11	22.00	04	08.00	50	100

Calculated Chi-square (χ^2) = 2.41 with degrees of freedom = 3.

Tabulated Chi-square (χ^2) = 7.81 at the 95% confidence level.

There are no statistically significant differences.

Do you use infographic technology?	Frequency	Percentage
Yes	49	98.00
No	01	02.00
Total	50	100

Table (04) displays the distribution of the study sample based on whether they use infographic technology in higher education. The results show that 98% of the sample members use infographics, while only 2% do not. This indicates that university professors are keen on adopting modern technologies and keeping up with technological advancements.

Table (05): Relationship Between University Professors Use of Infographic Technology and Gender:

Do you use infographics in education?	Yes.		No		Total.	
Gender	f	%	f	%	f	%
Female	28	56.00	—	—	28	56.00
Male	21	42.00	1	2.00	22	44.00
Total	49	98.00	1	2.00	50	100

Calculated $\chi^2 = 1.88$ (degrees of freedom = 1)

Tabular $\chi^2 = 3.84$ at 95% confidence level

There are no statistically significant differences.

The data in Table (05) indicate the distribution of the study sample according to their use of infographic technology and its relation to gender. The results show that the response "Yes" ranked first among both genders, with 56% of females and 44% of

males reporting usage. The response "No" was recorded at 2% among males, while no female participants selected "No."

By applying the Chi-square (χ^2) test, it was found that there are no significant differences between the two genders in their use of infographic technology in university education. The critical Chi-square value (3.84) was greater than the calculated value (1.88), with 1 degree of freedom and a significance level of 0.050.

Table (06) illustrates the relationship between university professors' use of infographic technology in higher education and the variable of academic field:

The data in Table (06) show the distribution of the study sample based on their use of infographic technology in education and its relationship to the academic field. The results reveal that the response "Yes" ranked first among professors in the field of Natural and Earth Sciences, with a rate of 54%, followed by professors in the field of Science and Technology at 22%. Professors from the

field of Humanities and Social Sciences ranked third with 16%, while those from the field of Economic Sciences and Management came last with 8%. The response "No" was absent among professors from all academic fields, except for the field of Economic Sciences and Management, where the "No" response accounted for 2%.

By applying the Chi-square (χ^2) test, it was found that there were no significant differences among the academic fields in

followed by "Encouraging interaction and participation" in third place at 8.16%. It is noteworthy that the study sample did not mention "Facilitating distance education" as a benefit, despite the ongoing shift toward online learning. This may be attributed to the fact that the participants do not teach courses that are delivered remotely. 55.11%. "Enhancing creativity and critical thinking" came second with 18%, followed by "Encouraging interaction and participation" in third place

Benefits of Use	Enhancing Creativity & Critical Thinking		Simplifying Complex Information		Encouraging Interaction & Participation		Other (Specify)		Total	
Gender	f	%	f	%	f	%	f	%	f	%
Female	11	22.45	14	28.57	03	06.12	-	-	28	57.15
Male	07	14.28	13	26.54	01	02.04	-	-	21	42.85
Total	18	36.73	27	55.11	04	08.16	-	-	49	100
<i>Chi-square (χ^2) value calculated = 0.93 with degrees of freedom = 3</i> <i>Critical chi-square (χ^2) value = 7.81 at 95% confidence level</i> <i>Conclusion: No statistically significant differences.</i>										

professors' use of infographic technology in education. The critical Chi-square value (7.81) was greater than the calculated value (2.41), with 3 degrees of freedom and a significance level of 0.050.

Table (07): Illustrates the benefits of university professors' use of infographic technology in higher education:

Benefit	Frequency	Percentage (%)
Enhancing creativity and critical thinking	18	36.73%
Simplifying complex information	27	55.11%
Encouraging interaction and participation	04	08.16%
Other (Specify)	-	-
Total	49	100%

The data in Table (07) present the distribution of the study sample according to the benefits of using infographic technology in university teaching. The results indicate that "Simplifying complex information" ranked first, accounting for 55.11%. "Enhancing creativity and critical thinking" came second with 18%,

at 8.16%. It is noteworthy that the study sample did not mention "Facilitating distance education" as a benefit, despite the ongoing shift toward online learning. This may be attributed to the fact that the participants do not teach courses that are delivered remotely.

Table (08) indicate the distribution of the study sample based on the benefits of using infographics in university teaching, analyzed by gender:

Table No (08) shows the relationship between the benefits of university professors using infographics in teaching and the gender variable. The data indicate the distribution of the study sample according to the benefits of using infographics in university teaching and their relation to gender. The results revealed that the benefit of simplifying complex information ranked first for both genders, with a percentage of 28.57% for females and 26.54% for males. The benefit of enhancing creativity and critical thinking came in second place, with

22.45% for females and 14.28% for males. As for the benefit of encouraging interaction and participation, it came last, with 6.12% for females and 2.04% for males.

By applying the Chi-square (χ^2) test, it was found that there are no statistically significant differences between the two genders in the perceived benefits of using infographics in university education. The critical value of χ^2 (7.81) was greater than the calculated value (0.93) at a degree of freedom = 3 and a significance level of 0.050.

Table (09) shows the relationship between the benefits of university professors' use of infographic technology in education and the field of study variable:

Scientific Field	Enhancing Creativity and Critical Thinking		Simplifying Complex Information		Encouraging Interaction and Participation		Others (Specify)		Total	
	f	%	f	%	f	%	f	%	f	%
Humanities and Social Sciences	06	12.24	—	—	02	04.08	—	—	08	16.32
Natural and Earth Sciences	08	16.32	18	36.74	01	02.04	—	—	27	55.11
Sciences and Technology	03	06.13	07	14.28	01	02.04	—	—	11	22.44
Economic Sciences and Management Sciences	01	02.04	02	04.08	—	—	—	—	03	06.13
Total	18	36.73	27	55.11	04	08.16	—	—	49	100
χ^2 Calculated = 23.93 with degrees of freedom = 9 χ^2 Critical (Tabular) = 16.92 at a 95% confidence level Conclusion: There are statistically significant differences.										

The data in Table (09) present the distribution of the study sample according to the benefits of using infographic technology in university teaching and its relationship to the professors' field of study. The results show that the benefit of simplifying complex information ranked first among professors from all scientific fields, except for those in the field of Humanities and Social Sciences. The percentage reached 36.74% for professors in the field of Natural and Earth Sciences,

14.28% for those in Science and Technology, and 4.08% for those in Economic Sciences and Management.

The benefit of enhancing creativity and critical thinking ranked second, with a percentage of 16.32% among professors of Natural and Earth Sciences, 12.24% among those in Humanities and Social Sciences, 6.13% among those in Science and Technology, and 2.04% among those in Economic Sciences and Management.

As for the benefit of encouraging interaction and participation, it ranked last, accounting for 4.08% among professors of Humanities and Social Sciences, and equally at 2.04% among professors of both Natural and Earth Sciences and Science and Technology. It was not mentioned at all by professors in Economic Sciences and

Management.

By applying the Chi-square (χ^2) test, statistically significant differences were found among professors across different scientific fields. The critical χ^2 value (16.92) was lower than the calculated value (23.93), with 9 degrees of freedom and a significance level of 0.050. These differences may be attributed to varying levels of experience in using this technology.

Table No. (10) shows the infographic design programs used by university professors:

Program	Frequency	Percentage %
Canva	25	44.64
Adobe Illustrator	10	17.85
Piktochart	04	07.14
PowerPoint	17	30.35
Total	56	100

Table (10) shows the distribution of the study sample according to the type of infographic design software used by university professors in teaching. The results indicate that Canva ranked first with a percentage of 44.64%, followed by PowerPoint in second place with 30.35%, Adobe Illustrator came in third with 17.85%, and Piktochart ranked last with 7.14%.

Table (11) shows the relationship between the infographic design software used by university professors in teaching and the gender variable:

Note: The number **56** represents the total number of responses, not the number of individuals in the sample.

Table (11) presents the distribution of responses regarding the types of infographic design programs used by university instructors in relation to gender. The findings show that Canva ranked first among both genders, with 24.99% of responses from females and 19.46% from males. PowerPoint came second, with a higher usage among females (64.70%) compared to males (35.29%). Adobe Illustrator ranked third with 12.49% for females and 5.36% for males. Lastly, Piktochart ranked fourth, showing equal usage across genders at 3.57%.

Applying the Chi-square test revealed no statistically significant differences between males and females in the use of infographic design programs in university teaching. The calculated Chi-square value (0.85) was less than the critical value (7.81) at 3 degrees of freedom and a significance level of 0.050.

Table No. (12) The Relationship Between Infographic Design Programs Used by Professors in University Education and the Scientific Field:

the Infographic Design Programs	Canva		Adobe Illustrator		Piktochart		PowerPoint		Total	
Gender	f	%	f	%	f	%	f	%	f	%
Female	14	24.99	07	12.49	02	03.57	11	64.70	34	60.71
Male	11	19.46	03	05.36	02	03.57	06	35.29	22	39.29
Total	25	44.64	10	17.85	04	07.14	17	30.35	56	100

Chi-square (χ^2) calculated value = 0.85 with degrees of freedom = 3.
 Chi-square (χ^2) table value = 7.81 at 95% confidence level.
 There are no statistically significant differences.

the Infographic Design Programs	Canva		Adobe Illustrator		Piktochart		PowerPoint		Total	
Scientific Field	f	%	f	%	f	%	f	%	f	%
Human and Social Sciences	-	-	01	01.78	-	-	06	10.72	07	12.50
Natural and Earth Sciences	19	33.93	03	05.35	02	03.57	10	17.85	34	60.71
Science and Technology	05	08.93	04	07.15	01	01.78	01	01.78	11	19.64
Economic Sciences and Management	01	01.78	02	03.57	01	01.78	-	-	04	07.15
Total	25	44.64	10	17.85	04	07.14	17	30.35	56	100
The calculated Chi-square (χ^2) value is 22.91 with degrees of freedom = 9. The tabulated Chi-square (χ^2) value is 16.92 at a 95% confidence level. There are statistically significant differences.										

Note: The number **56** represents the total number of responses, not the number of participants.

Table No. (12) presents the distribution of the study sample based on the types of infographic design programs used by university professors in teaching and their relation to the professors' scientific fields. The results show that **Canva** ranked first among professors in the fields of Natural and Earth Sciences and Science and Technology, with 33.93% and 8.93% respectively. It was not used by professors in the field of Humanities and Social Sciences and came in second place among professors in the field of Economic Sciences and Management at 1.78%.

PowerPoint ranked second, with 17.85% among Natural and Earth Sciences professors and 10.72% among Humanities and Social Sciences professors. It ranked third among professors in the field of Science and Technology at 1.78%, and was not used by professors in the field of Economic Sciences and Management.

Adobe Illustrator ranked third, with 5.35% among professors in Natural and Earth Sciences, 3.57% among Economic Sciences and Management, and 1.78% among Humanities and Social Sciences. Among Science and Technology professors, it ranked second at 7.15%.

Piktochart came in last, with 3.57% among Natural and Earth Sciences professors, and equal proportions of 1.78% among professors in Science and Technology and Economic Sciences and Management.

By applying the Chi-square (χ^2) test, statistically significant differences were found among the scientific fields in the types of infographic design programs used. The critical χ^2 value (16.92) was lower than the calculated χ^2 value (22.91), with 9 degrees of freedom and a significance level of 0.050. This indicates a variation in proficiency and preference among professors in using different design programs.

Table No. (13) shows the professors' willingness to receive training on using infographic technology in university education:

Willingness to Receive Training	Frequency	Percentage %
Yes	30	60.00%
No	20	40.00%
Total	50	100%

The table data shows the distribution of the study sample based on their willingness to receive training on using infographic technology in university education. The results indicate that 60% of professors expressed interest in receiving training, while 40% did not.

Field of Study	Human and Social Sciences		Natural and Earth Sciences		Science and Technology		Economic and Management Sciences		Total	
Willingness to receive training courses	f	%	f	%	f	%	f	%	f	%
Yes	05	10.00	18	36.00	05	10.00	02	04.00	30	56.00
No	03	06	09	18	06	12.00	02	04.00	20	44.00
Total	08	16.00	27	54.00	11	22.00	04	08.00	50	100
Chi-squared (χ^2) calculated = 1.65, with degrees of freedom = 3 Chi-squared (χ^2) table value = 7.81 at 95% confidence level There are no statistically significant differences.										

Table (14): The relationship between university professors' desire to receive training courses on the use of infographic technology in higher education and the gender variable :

Willingness to receive training courses	Yes		No		Total	
Gender	f	%	f	%	f	%
Female	17	34.00	11	22.00	28	56.00
Male	13	26.00	09	18.00	22	44.00
Total	30	60.00	20	40.00	50	100
Chi-square calculated value = 0.01 Degrees of freedom = 1 Chi-square tabulated value = 3.84 at 95% confidence level Conclusion: There are no statistically significant differences.						

Table (14) presents the distribution of the study sample according to their willingness to receive training courses on the use of infographic technology in university education, in relation to gender. The results show that the response "Yes" ranked first for both genders, with 34% among females and 26% among males. The response "No" ranked second, with 22% among females and 18% among males.

Applying the Chi-square (χ^2) test revealed that there are no statistically significant differences between males and females in their willingness to receive training courses on the use of infographic technology in university education. The critical value of χ^2 (3.84) was greater than the calculated value (0.01), at a degree of freedom = 1 and a significance level of 0.050.

Table No. (15) explores the relationship between professors' desire for training on infographic technology and their academic field:

Table (15) presents the distribution of the study sample according to their willingness to receive training courses on the use of infographic technology in university education and its relation to the academic field of the instructor. The results indicate that the response "Yes" ranked first among instructors in the field of Natural and Earth Sciences, with a rate of 36%, followed by instructors in the field of Humanities and Social Sciences with 10%. In contrast, instructors in the field of Science and Technology showed a higher percentage of "No" responses than "Yes" responses, with 12% and 10%, respectively. In the field of Economic Sciences and Management Sciences, the responses were equal, with both "Yes" and "No" receiving 4%. The "No" response ranked second among instructors in the field of Natural and Earth Sciences at 18%, as well as among those in the Humanities and Social Sciences at 6%.

Applying the Chi-square test revealed no significant differences among the academic fields of the instructors in their willingness to receive training courses on the use of infographic technology in university education. The tabulated Chi-square value (7.81) was greater than the calculated Chi-square value (1.65), with

degrees of freedom = 3 and a significance level of 0.050.

Table No. (16) outlines the obstacles faced by professors in using infographic technology in university teaching:

Barriers	Frequency	Percentage
Lack of technical skills	13	59.09
Lack of time to create designs	06	27.27
Not suitable for their field	01	04.54
Others (please specify)	02	09.09
Total	22	100

Table (16) presents the distribution of the study sample according to the obstacles they face in using infographics in university education. The results show that 59.09% attribute the reason to a lack of technical skills, while 27.27% cite lack of time to create such designs. Meanwhile, 4.54% believe the obstacle lies in the incompatibility with the nature of their specialization. Others point to major challenges such as limited tools and resources, weak internet connectivity, and the financial cost of some software programs.

4. Key Study Findings:

The percentage of female participants in this study was higher than that of males, accounting for 56%, while males represented 44%.

- 4.1. The age group between 33 and 40 years recorded the highest percentage at 56%, whereas the age group between 41 and 45 years had the lowest percentage at 6%.
- 4.2. The results indicate that faculty members from the field of Natural and Earth Sciences ranked first with 54%, while those from Science and Technology ranked last with 8%.
- 4.3. The findings showed that 98% of the sample reported using infographics in university teaching, while only 2% stated they did not use this technique.
- 4.4. The study found no statistically significant differences between gender or academic field in terms of the use of infographics in university education.

- 4.5. The data revealed that simplifying complex information was the most commonly reported benefit of using infographics in university teaching, with 55.11%, while stimulating interaction and participation ranked third with 8.16%.
- 4.6. The results indicated no statistically significant gender-based differences regarding the perceived benefits of using infographics in university teaching, while significant differences were observed across academic fields.
- 4.7. The Canva infographic design program ranked first among the tools used by the sample with 44.64%, while Piktochart ranked last with 7.14%.
- 4.8. There were no statistically significant differences between genders regarding the types of infographic design programs used in teaching; however, statistically significant differences were found across academic disciplines.
- 4.9. The results show that 60% of the participants expressed a desire to receive training on using infographics in university education, while 40% did not.
- 4.10. The findings revealed no statistically significant differences by gender or academic field in the desire to receive training on infographic use in university teaching.
- 4.11. The results indicate that the major obstacle to using infographics in university teaching, reported by 59.09%, is a lack of technical skills, whereas the least cited reason (4.54%) was the incompatibility with the nature of the academic field.

5. Conclusion:

This study examines the use of infographic technology in university teaching from the perspective of a sample of Algerian university professors. The research included:

A theoretical analysis, defining infographic technology, its types, and design software.

A field study, surveying a sample of university professors.

Statistical analysis of the survey results confirmed:

- No significant gender- or field-based differences in the use of infographic technology.
- No significant gender-based differences in the type of infographic design software

used, but field-based differences were observed.

- No significant gender- or field-based differences in the desire for training in infographic technology.

Bibliography List :

1. Books :

- Shaltout, M. (2016). *Infographic: From Planning to Production*. Riyadh: Asas Advertising Agency.
- Shahin, S. K. (n.d.). *Electronic Information Sources in Libraries and Documentation Centers* (1st ed.). Cairo: Egyptian Lebanese House.

2. Theses:

- Zayed, H. (2017). *The Role of Infographics as an Effective Learning Tool in Jordanian Universities* (Unpublished Master's thesis). Middle East University, Amman, Jordan.
- Amjad, N. (2022). *The Effectiveness of Using Infographic Technology in University Teaching for the Graphic History Course on Academic Achievement* (Unpublished Master's thesis). An-Najah National University, Nablus, Palestine.

3. Journal article :

- Ismail, A. R. (2016). *The Use of Infographic (Interactive, Static) and Its Impact on the Academic Achievement of Educational Technology Students and Their Attitudes Toward It*. Journal of Studies and Research, Issue 28.
- Amin, M. (2019). *The Effect of Using Static Infographic Styles and Cognitive Style on Developing Report Writing Skills Using Ubiquitous Learning Environments Among Higher Institute Students*. Journal of Educational Technology: Studies and Research, Issue 41.
- El-Sherbiny, D. F. A. (2020). *The Use of Infographics in Teaching Social Studies to Develop Rapid Learning Skills and Spatial Ability Among Fifth Grade Primary Pupils*. The Educational Journal, Vol. 75.

- Mahmoud, S. M. (2023). *An Educational Program Using Microteaching to Learn Freestyle Swimming for Children*. Assiut Journal of Sport Science and Arts, Issue 65, Part 2.

- Cairo, Alberto(2012) : *the functional Art : An introduction to information graphic and visualization, united states of America* : New Riders.

- Cairo, A. (2016) : *The Truthful Art: Data, Charts, and Maps for Communication*. New Riders.

- Few, S (2009) : *Now You See It: Simple Visualization Techniques for Quantitative Analysis*. Analytics Press.

- Hassan, Hesham Galal (2016): *Designing Infographics to support teaching*

- complex science subject: *A comparison between static and animated Infographics*.

- Krum, R (2013):*Cool infographics: Effective communication with data visualization and design, Canada: John & Sons*.

- Smiciklas, M. (2012) :*The Power of Infographics: Using Pictures to Communicate and Connect with Your Audiences*. Que Publishing.

4. Internet websites:

- Dawood, Mohannad (2015)
<https://academy.hsoub.com/marketing/inbound-marketing/%D9%85%D8%AF%D8%AE%D9%84-%D8%A5%D9%84%D9%89-%D9%85%D9%81%D9%87%D9%88%D9%85-%D8%A7%D9%84%D8%A5%D9%86%D9%81%D9%88%D8%AC%D8%B1%D8%A7%D9%81%D9%8A%D9%83-r63/>
- <https://www.onqmarketing.com.au/local-search-ranking-australian-study>
- <https://ar.venngage.com>.